with him that it is oftentimes difficult for a patient to return to the office for massage on four consecutive days. It is also expensive for the patient, but I am sure any urologist would be only too glad to make a nominal fee according to the means of the patient.

The glass tests are not satisfactory in themselves and I know of no other means at present other than prostatic massage and microscopic study of the secretion obtained which will give us positive data. McChesney's suggestion, however, is worthy of consideration.

CONSIDERATION OF PROGRESSIVE MUSCULAR DYSTROPHY WITH PSEUDO-HYPERTROPHY FROM AN ENDOCRINE STANDPOINT

By CLIFFORD WRIGHT, M. D., *Los Angeles*

Dysfunction of the pituitary gland considered etiologically important.

Recent literature and clinical evidence commented upon.

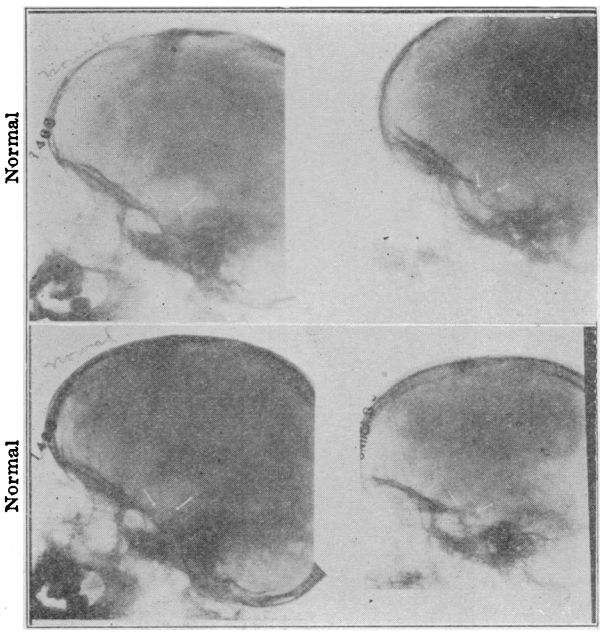
DISCUSSED *by H. Lisser, San Francisco; H. Douglas Eaton, Los Angeles; Edward N. Reed, Los Angeles.*

WHEN the earlier investigators of progressive muscular dystrophy discovered that there was no evidence of pathology changes in the brain and central nervous system, it became necessary to look further for the etiology of this interesting, yet quite irregular group of muscle disturbances. That they are endocrinopathies, probably pluri-glandular, seems borne out by the frequent association with other glandular disturbances, as Grave's disease; Addison's disease; acromegaly; and myxedema, and that many cases show pigmentation; vitiligo; hypo-glycemia; asthenia, and many other endocrine symptoms. Several cases have shown spontaneous cure at puberty, probably through some action of the gonads or other endocrines.

The pituitary gland, particularly the anterior lobe, has a very marked effect on the skeletal growth; muscle development and the maintenance of muscle tone and any disturbance of these may depend on some pituitary condition. I have had a series of nineteen cases of progressive muscular dystrophy with pseudo-hypertrophy, and it is the association of these conditions with other symptoms of pituitary disease that will be considered here.

In the progressive muscular dystrophies due to the irregularity of muscle involvement, the course of the disease; the absence or presence of contractures and other factors, a classification suitable to all cases is not easy.

Erb's classification into hypertrophic and atrophic forms has been usually followed, but one specifying a rapid and slow type is quite practical. While usually the earlier the condition starts the more rapidly progressive it is, this is not always so. One of my untreated patients, 9 years old, who has been affected six years, is practically bedridden; one at 12 who has been sick since 3 years of age, and one 15 who has had paralysis since 2 years of age, show slower progress of the paralysis. Heredity must play a part in this disorder, for in some instances several generations of the same family have shown some form of the disease. In 1916, Timme of New York reported a series of fourteen cases extending through three generations in one family. Twice in my series two brothers were affected, and



Sella turcica in each instance smaller than normal.

the great-grandmother of another patient and her six sisters all developed the condition at about 50 years of age, and a daughter of one of these women was affected. Of my nineteen cases, twelve are boys and seven are girls.

The usual tendency of the disease is to progress to complete invalidism showing exacerbations lasting from one to several weeks, when the patient shows more active symptoms and frequently is bedridden. These increase in severity and duration, as well as frequency, and death often comes at 16 to 18 years in the earlier cases, while the slower cases continue on to old age. Death may be caused by some intercurrent condition or from involvement of the respiratory or cardiac centers.

SYMPTOMATOLOGY

At first it is noticed that the child is clumsy, falls frequently, and is unable to walk up or down stairs. Later the typical waddling gait appears, and after falling, the child, in rising, will crawl up its own legs. The legs are usually first affected and show the typical pseudo-hypertrophy of the calf muscles, with atrophy of the shoulder girdle. Knee-jerks are absent; the paralysis is irregular. In no cases have I seen facial involvement. One has atrophy of the thenar and hypothenar eminences. Atrophy usually follows the false hypertrophy. Contractures are frequent and varied. Those of the heel cord are most frequent and prevent standing in many cases; others are equinovarus; hamstring contractures and scoliosis. Microscopical muscle changes are splitting of the muscle fibers, proliferation of nuclei, proliferation with hyperplasia of vasular tissues and deposit of connective tissue and fat. Sometimes muscle fibers have entirely disappeared and the muscle becomes pale. The electrical reactions are normal. The sphincters are intact. Sensibility is intact, also the special senses. With these, and most interesting from my standpoint, are the following pituitary symptoms: Large, round head; round face; spaced

teeth; heavy central incisors; pituitary type of hand, smooth mottled skin, poor nails and sexual underdevelopment, all found in anterior lobe insufficiency and girdle obesity; high sugar tolerance; and weak pulse found in posterior lobe conditions. A large percentage of my patients were backward mentally. In addition, in most cases, x-rays show an undersized sella turcica and rarification of the bony tissues, both indicative of pituitary disturbances. These children always appear to be in good general health, cluding bracing for support; prevention and correction of deformities and graduated muscle training and organotherapy. For several years I have used pituitary products by mouth and hypodermic. Whole gland powder is given by mouth, and when indicated pituitrin is given hypodermically, and occasionally adrenalin and small doses of thyroid have been used.

While I have had no complete cures, a large percentage of patients have been benefited to the extent

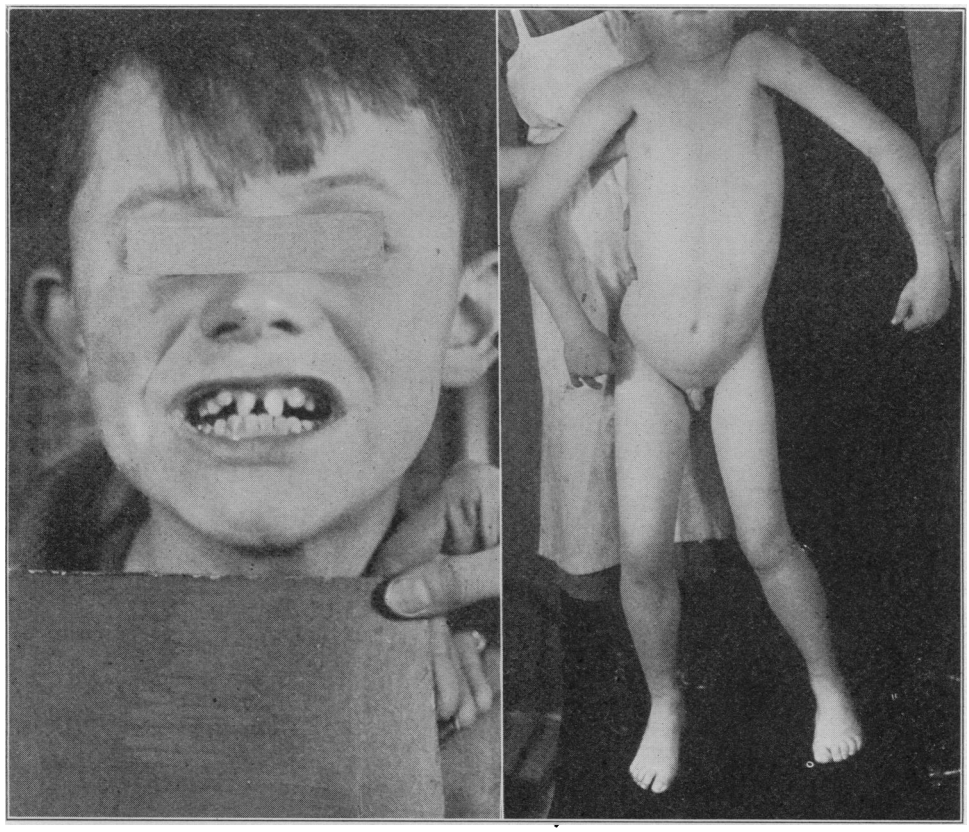


FIGURE 1

Showing round head, round face, and spaced teeth. Undeveloped sexual organs; large calf; atrophy at the shoulder girdle, etc.

are happy, not constipated, rest well, and nearly all are voracious, indiscriminate eaters.

Case No. 1—This boy (see Figure 1) is 10 years of age. A younger brother has the same condition. Note underdeveloped sexual organs, large calf muscles with atrophy around the shoulders, large head, large round face, spaced teeth. This boy has the typical mottled skin and small, graceful, tapering fingers. The x-ray shows a sella turcica smaller than normal for this age, which is seen at the left. All the x-rays shown were taken with 24-inch plate tube distance. This makes the sella appear smaller than if taken closer. This different plate tube distance probably accounts for some of the discrepancies in tables of sella measurements. This patient has been under treatment three years and has made steady improvement, but is unable to stand at this time, due to contraction of the heel cords, for which his parents have not allowed operative procedure.

Case No. 2—This girl (see Figure 2) is 10 years of age, shows mild girdle obesity, the typical muscle condition, large head, large face, pituitary type of hands, and spaced teeth. X-ray shows small sella turcica.

TREATMENT

Includes general care—orthopedic supervision, in-

that the paralysis seems non-progressive and the exacerbations are less frequent and less severe, and in two or three patients there has been a very marked improvement. The mental condition of all of my patients has been greatly improved. It is my opinion that dysfunction of the pituitary gland is an important etiological factor in progressive muscular distrophy.

2417 South Hope Street.

DISCUSSION

H. LISSER, M. D. (380 Post Street, San Francisco)—Doctor Wright deserves commendation for adding his observations and experience to the literature, which now contains many interesting records—metabolic, clinical, and pathological—which, taken together, suggest rather strongly an endocrine origin for progressive muscular dystrophy. The writings of McCrudden, McCrudden and Sargent (Janney, Goodhart and Isaacson), Timme, Boveri and von Werdt are especially worthy of review in this connection. As yet there is no agreement in assigning the primary causative role to any one ductless gland, some implicating the thyroid, others the pituitary, still

others the adrenals and pineal. In this uncertainty some writers prefer a discrete caution and consider the disease of pluriglandular origin. Although a coincidental affection of several glands is conceivable, it should be recognized that the great majority of endocrine diseases, of which we have any positive knowledge and which we are able to diagnose in life and verify at autopsy, are syndromes for which a single gland is primarily responsible and whose dysfunction clearly dominates the onset and subsequent course of the disease.

If further investigation should prove a uniglandular origin for this disease, I would venture to predict (in agreement with Wright) that the hypophysis will be found primarily responsible. Hypopituitarism includes many of the phenomena characteristic of this disease—hypoglycemia, impairment in the power to store glycogen, adiposity, trophic changes in hair, skin, tendons, and nails; and, secondarily, genital infantilism with creatinuria, as is also found in eunuchoidism.

My personal experience in the glandular treatment of progressive muscular dystrophy is confined to one patient, and is, therefore, of little significance. This patient, nevertheless, has exhibited an amazing improvement, far and beyond what could be expected from the natural course of the disease. The malady is usually progressive, though sometimes stationary for a time; remissions are not noted. This patient has been observed for two and a half years. The treatment has consisted of whole gland pituitary extract by mouth and by injection (three injections a week) continuously administered since November, 1921. He has lost fifteen pounds in weight. He can raise himself on his toes, which he could never perform previously. He can walk upstairs, without climbing up his legs. Formerly he could not walk two miles; now he walks six to seven miles fishing. He can walk through the snow (lives in Truckee, California), which admittedly is a severe test for the weakened atrophied muscles of back, thighs, and legs. He was unable to control his hand in writing; he now can write for hours. Before he could not get up on his hands and knees in bed; he can do this easily now. He does not use a cane now; which he did for several years. He has been working in a store about sixteen hours a day. This patient is by no means cured, but no one could question the veritable transformation in this man's appearance, strength, and vitality.

Since no measures other than orthopedic assistance are in any way beneficial for these unfortunate individuals, long-continued organotherapy is at least deserving of an adequate trial, and when more potent preparations are available, we may perhaps be rewarded by more striking and consistent success.

H. Douglas Eaton, M. D. (1136 West Sixth Street, Los Angeles)—It has been most interesting to read Doctor Wright's experiences with the use of pituitary medication in progressive muscular dystrophy. If he has succeeded in arresting one case by its use, he has accomplished more than has been accomplished previously by any medication.

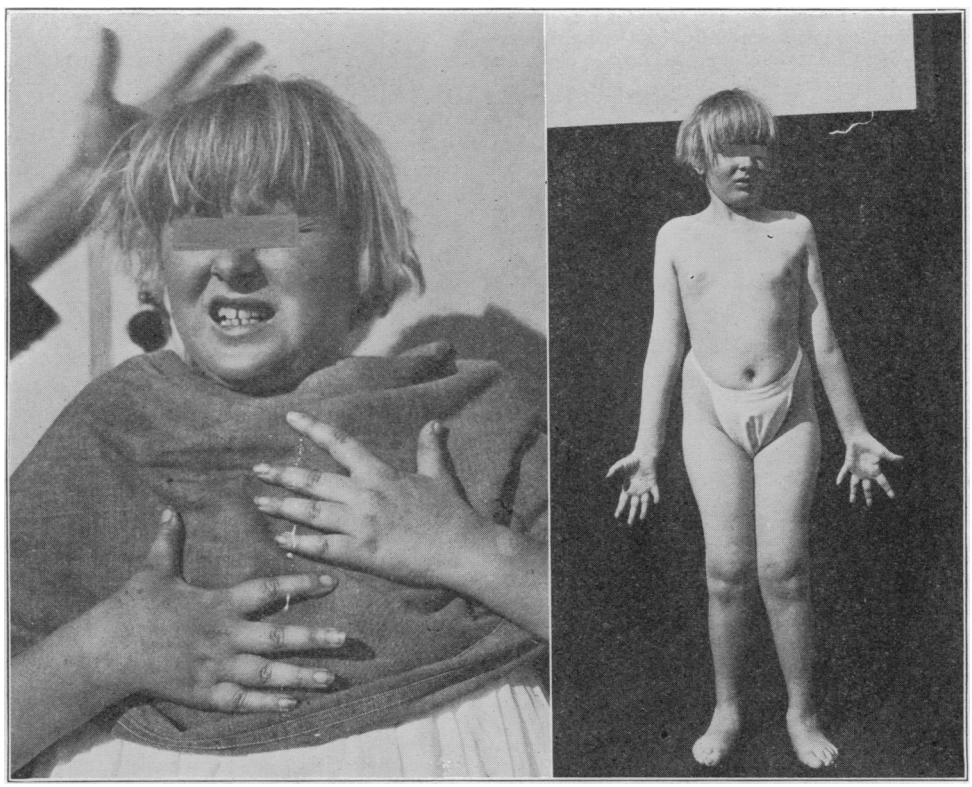


FIGURE 2

Shows spaced teeth, large round head, round face, and pituitary type of hand.

Typical muscle condition, moderate degree of girdle obesity.

My experience with endocrine medication in progressive muscular dystrophy has been unsatisfactory up to date. I have been using pituitrin; the whole pituitary gland substance; and thyroid and adrenalin, alone and in various combinations, both by mouth and hypodermatically at the Children's Hospital for some years. I have attempted to suit the medication to individual indications, and have also tried using pituitary persistently, irrespective of definite evidence of hypopituitary function.

In looking for the explanation of my lack of success, I have felt that many of my patients were not pure types of dystrophy; many have shown changes in the reflexes and mental deficiency as well. I am planning to prove my diagnosis in the future, when possible, and restrict my endocrine experimentation to proved cases.

The other reason for my failure probably is, that pluriglandular dysfunction are present in progressive muscular dystrophy, and it is often difficult with present limited knowledge of endocrinology to determine the exact medication for a given case. Timme of New York, in a recent conversation with me, agrees in this hypothesis. Timme states he has had four cures in seventy-five cases, with a greater number of patients much improved as the result of pluriglandular medication. I also question

whether there may not be another important etiological factor as yet unrecognized.

We are indebted to Wright for presenting his interesting work, and emphasizing the hope that we may really learn to help such a distressing condition as progressive muscular dystrophy.

EDWARD N. REED, M. D. (2417 South Hope Street, Los Angeles)—I have observed a number of these cases at the Orthopedic Hospital School; and I have carried out with them the indications for prevention of deformities and for their correction when present. More than this, I have given them physiotherapy, baking, massage and muscle training, faithfully carried out over long periods of time, and proper bracing when indicated. I have learned that the best I could hope for was an arrest of the progress of the disease, apparently, in a certain number of patients—though for how long the arrest could be maintained I do not know. My experience has failed to show much, if any, improvement by physiotherapy and muscle training alone.

On the other hand, I can testify to the improvement in several of Wright's patients. These patients also had physiotherapy, muscle training, and bracing. But I feel that the results of Wright's treatment were very evident, in that with a number of the patients whom he treated showed demonstrable improvement.

DOCTOR WRIGHT (closing)—Doctor Lisser's patient was quite instructive, and it would seem, from the history, that if the case was not entirely cured it was benefited to the extent that the man was able to carry on his usual activities.

One of our patients, a girl, has been under treatment for six years, and while at first she had to be wheeled to and from school she now walks and is taking dancing lessons. This girl's mother declares that a cure has been effected; however, I feel that perhaps there is still some muscle weakness.

As Doctor Reed has said, orthopedic measures alone have failed to greatly benefit these patients, but those who have had orthopedic treatment plus organotherapy have shown beneficial results.

Arsenic Poisoning—Twenty-eight cases of arsenic poisoning are reported by G. B. Lawson, W. P. Jackson and G. S. Cattanach, Roanoke, Va. (Journal A. M. A.). Large quantities of arsenic were demonstrated to be present in cider which had been served at the noon meal. It was later learned that the barrel had contained an arsenic compound used for spraying trees. Thirteen of these patients died, the first death occurring in six hours, and the thirteenth on the thirteenth day after the taking of the poison. Ten of these deaths occurred in the acute stage, and the other three during the subacute stage, into which the patients had passed with a cessation of the acute symptoms on the second day. Immediately following the onset, vigorous supportive and symptomatic treatment was given; and nine patients, all of whom survived, repeatedly lavaged their own stomachs with warm water. After the Marsh test had demonstrated an abundance of arsenic, it was decided to use sodium thiosulphate with the hope of inactivating the remaining arsenic by the production of its nontoxic, insoluble sulphid. No immediate improvement was observed following the use of sodium thiosulphate. To be of possible value in acute poisoning, it should be given at once and in maximum doses. Analysis of samples taken at the time of the poisoning showed the presence of 3.38 grains of arsenic (As_2O_3) per fluidounce. Most of the patients drank several glasses of the cider, but because of the vomiting and diarrhea it was impossible to determine the amount retained.

Sinusitis and Swimming—H. M. Taylor, Jacksonville, Fla. (Journal A. M. A.), points out the modifications which the aquatic animals have for their environment and the striking absence of such adaptations in man. Man is essentially a terrestrial being, and his anatomy and physiology are not modified for a water environment. When man is out of his normal sphere he must understand what limitations Nature has placed on him, and not ignore the fundamental laws that regulate his own being.

THE TREATMENT OF EARLY CARCINOMA OF THE UTERUS

By J. W. SHERRICK, M. D., *Oakland*

Treatment of early carcinoma of the uterus implies an early diagnosis, detailed knowledge of the histologic picture, its gross and macroscopic characteristics, its methods of spread and the clinical course.

DISCUSSION *by William H. Gilbert, Los Angeles; A. J. Lartigau, San Francisco.*

MY CONCLUSIONS are based on a careful summing up and weighing of the opinions advanced by different authorities, who, from their experience and the clinical material at hand, may speak with conviction. Owing to the mass of literature on this subject and the necessarily divergent opinions expressed, it is impossible to quote extensively to prove the points under consideration. But from an unbiased study, aided by personal experience, I have reached the views as set forth and feel that they represent the consensus of current opinion of surgeons and gynecologists.

One of the most important and puzzling questions facing physicians is the treatment of early carcinoma of the uterus because of the prevalence of the disease, its poor prognosis and the problem of early diagnosis. Our task would be relatively easy if we could be assured that the patient would report when the disease is in its early stages, for then the line of procedure is fairly clear with a high percentage of cures resulting. But the very nature of this condition militates against an early diagnosis and adds enormously to our responsibility and burden. Speaking generally, it seems that from the vast detail of therapeutic measures that have been utilized from time to time, two procedures stand out as most rational, namely, radical operation and radium and deep x-ray therapy.

In carcinoma we are dealing with a distinctly local affection in the early stages, a parasitic epithelial new growth which is capable of growing without limit to infiltrate and destroy the tissues in which it originates and of spreading beyond the anatomical bounds of these organs to hematogenous and lymphogenous metastases in other parts of the body. It is capable of perpetual proliferation, its cells multiply without purpose or effect, and may remain latent in the host's tissues for years. It may exhibit cyclical changes with periods of rapid or of slow growth or even of retrogression. Its susceptibility to extraneous influences and its histologic structure vary from time to time. It presents no specific toxins nor does the organism react to form antibodies, but in the early stages it apparently may call forth an increased metabolism in the host's organs with later a failure to respond to this stimulus, at which time the cancer begins to live at the expense of the host.

Thirty per cent of cancer in women occurs in the uterus. Histologically uterine cancers, while having certain points in common, have not a fixed and unvarying structure. Each individual tumor presents its own particular characteristics with varying degrees of malignancy and within limits of varying susceptibility to therapeutic efforts. But clinically, there is no distinct difference in its varying forms, structure and location. For purposes of treatment,